reveal that the absence of Egr1 causes defects in the morphogenesis and in the late differentiation of cranial cartilaginous pieces. The very dynamic expression pattern of egr1 has already been described until 48 h post fertilization. Our results show that egr1 starts its expression in the pharyngeal region around 27 hpf. At later stages, egr1 seems to be expressed in the pharyngeal endoderm which is known to be essential for pharyngeal arch development.

Acknowledgments: F.N.R.S.; ESA; PAI.

doi:10.1016/j.ydbio.2007.03.489

Program/Abstract # 418

Relationship between foxc2 and Shh during Xenopus laevis development

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During vertebrate embryogenesis, the newly formed mesoderm is allocated to the paraxial, intermediate, and lateral domains, each giving rise to different cell and tissue types. Several Fox genes are expressed during early stages of *Xenopus* development and are regulating diverse aspects of pattern formation of the endoderm, ectoderm and mesoderm. A number of factors have been identified that function in local signaling network to regulate early mesoderm development. Among these secreted molecules is Sonic hedgehog (*Shh*). Here, we studied the *foxc2* role in the specification of mesoderm and the regulation of this gene by Shh in the *Xenopus laevis* amphibian. It has been reported that *foxc2* is expressed in the presomitic mesoderm along the antero-posterior axis of the embryo. In the somites is expressed only in the sclerotome but not in the dermatome and myotome. A strong expression is present in the head mesoderm particularly surrounding the eyes. In the present work a novel expression domain of *foxc2* was found: the branchial arches. In order to analyse the *foxc2* relationship with *Shh* signaling, misexpression experiments with the *shh* receptor (Xptc 1) were done. Our results suggest that amphibian *foxc2* is involved in the fate of mesodermal layer, in a similar way of orthologue mouse gene and its expression could be regulated by Shh.

doi:10.1016/j.ydbio.2007.03.490

Program/Abstract # 419

The *Siggi* (KIAA0888) homolog of *X. tropicalis* is essential for the early embryogenesis

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In a screening of genes involved in early development in *X. tropicalis* using as a gene-trap the green fluorescent protein (GFP), we generated several mutant lines. A founder animal with an insert in the *Siggi* gene (humanKIAA0888) was identified using 5′RACE. This is a developmentally normal female with a possible maternal effect lethal phenotype. From 3 matings of this founder generating hundreds of embryos, only a single normal individual matured. All other offspring died, both transgenic and non-transgenic. The majority died during the gastrulation. The remainder die with severe axial, endoderm and craniofacial defects. A transcript cloned from St44 wild-type tadpoles is predicted to encode a 79-kDa protein. Several altered transcripts were cloned by RT–PCR from transgenic animals indicating that a duplication of at least 1 exon has occurred. *In situ* analysis shows expression in the developing CNS, neural crest and muscle. Morpholino injection into early embryos gives a dose-dependent response. High concentrations cause developmental delay, exogastrulation and axial defects. Intermediate concentrations allow development to later stages and phenocopy the F1 tadpole phenotype. A low concentration gives phenotypically normal tadpoles that show later defects in development and a failure to thrive. This growth reduction can be rescued by co-injection of RNA encoding the full-length predicted protein. However, the injected RNA does not rescue early defects. Finally, RNA encoding the full-length protein fused to GFP shows nuclear localization and the overexpression also cause an abnormal phenotype.

doi:10.1016/j.ydbio.2007.03.491

Program/Abstract # 420

Complement C3 is necessary for early patterning of neural crest, foregut and blood in Xenopus laevis

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Complement C3 is the central component of the proteolytic complement cascade, a central player of innate immunity. Together with other members of the complement cascade, it is expressed at gastrula stage in neural and endodermal progenitors. As development proceeds, its expression is first limited to the neural folds and neural crest. At tailbud stage, expression is in the presumptive gut, and finally becomes restricted to the liver by tadpole stage. The cognate receptor C3aR displays a reciprocal expression pattern suggesting that the ligand–receptor pair have a previously unrecognized patterning role. Serine proteases are known for their role in dorso-ventral patterning of *Drosophila*. Therefore, we hypothesized that complement C3 is necessary for patterning of the neural crest and developing